LUFTPOST
PAR AVION

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Dear Esther and Josh,

Thank you for the strains which arrived safely long time ago. Some few days ago we suddenly got a number of reprints which had arrived to the Institute before our return to Copenhagen. By a mistake they had been delivered to Frits' father's office and were found there the other day. Among the reprints was also the wonderful picture book showing animals and flowers from Australia It really contained the most amazing collection of wildlife photographs which we have ever seen. Thank you very much and please excuse us for not thanking you before.

We are very busy for the moment in the Escherichia Center producing sera and examining strains which have accumulated during our abscence, but we can now see the end of this part of the work, and even if the typing work in the Center also in the future will occupy part of our time we should be able to devote most of the day to genetical work.

We got a ms. from Mrs. Schlegel-Oprecht on "Der A-Antigen-Verlust eines Coli-Stammes und der Versuch seiner genetischen Deutung." Mrs. Eva Schlegel worked in Cavalli's lab for some time and has carried out most of the work in Zürich. As we understood the ms. was also sent to Cavalli so we wondered if you have seen it. If you have, we should be very interested in hearing your opinion. Mrs. Schlegel-Oprecht has worked with a coli strain belonging to o9 with an A-antigen. She has found some evidence for two genes related to the capsule, one carrying the specificity and one "Kap" gene responsible for capsule formation. (She is not using the term "Kap" or any other term).

We repeated cross # 15 (according to our report): W 3473F$^-$ x W 3703 Hfr and we got results which were absolutely consistent with those we got in Madison, especially did all H$^+$ recombinants belong to o25. See the enclosed table. As to the factor called Kap we are not absolutely sure that this factor directly is concerned with capsule formation. The factor seems to determine inagglutinability in O-serum. For the moment we are prepairing a serum with a Kap$^+$ Kap$^+$o25 recombinant and we hope to get a little information about this question.

According to our preliminary investigations in Madison of the antigenicity of the F factor (see table 10 in our report) we were not able to find antibodies in the F$^+$ serum (W1611F$^+$). After reexamination of the same serum with the same strains and some fertile recombinants from the above mentioned cross, we do find something which maybe could be interpreted as an F agglutination and we are working further along that line.

W 3473 F^- H^- GlycSer$^-$ L^+ Tryp$^+$ lac$^+$ mal$^+$ S^s Fla$^+$ H2 oloo Kap$^+$ K^{oloo}

× W 3703 Hfr H^+ GlycSer$^+$ L^- Tryp$^-$ lac$^-$ mal$^-$ S^r Fla$^-$ H16 o25 Kap$^-$ K^{W1611}

Cross on Ems gal supplemented with Histidine and tryptofane.
156 recombinants were examined.

	Hist$^-$	Hist$^+$	mal$^+$	mal$^-$	S^s	S^r	oloo	o25	Fla$^+$	Fla$^-$	H2	H16	Kap$^+$	Kap$^-$	K^{oloo}	K^{W1611}
lac$^+$	116	36	148	4	148	4	115	37	146	6	116	30	147,2?	3	110	37
lac$^-$	2	2	4	o	4	o	2	2	4	o	2	2	4	o	2	2
Hist$^-$			114	4	115	3	117	1	113	5	110	3	113,2?	3	112	1
Hist$^+$			38	o	37	1	o	38	37	1	8	29	38	o	o	38
oloo	117	o	114	3	114	3			112	5	109	3	112,2?	3	112	1
o25	1	38	38	1	38	1			38	1	9	29	39	o	o	38
Fla$^+$	113	37	148	2	147	3	112	38			118	32	149,1?	o	111	38
Fla$^-$	5	1	4	2	5	1	5	1			-	-	2, 1?	3	1	1

	Hist	Tryp	lac	mal	Sm	oloo	o25	Fla	H2	H16	Kap	Koloo	KW1611
one behaved so:	+	-	+	+	s		+	+	+		+		+
,, ,, ,,	-	-	+	+	s	+		+	+		+	+	
,, ,, ,,	-	-	+	+	s	+		-			+	+	

The remaining 153 recombinants were all Tryp$^+$

For further confirmation of the finding that the O-antigen follows histidine, we have carried out the following cross:

W 3438 F^- H^- $rham^-$ lac^+ mal^+ S^s Fla^+ H8 o1o2

x W 37o3 Hfr $Tryp^-$ L^- $rham^+$ lac^- mal^- S^r Fla^- H16 o25

The parents were plated on EMrham supplemented with histidine. Using one drop of each of the parental broth cultures (5 ml) centrifuged and resuspended in .5 ml dest. water, more than looo recombinants were found. In a repetition of this cross with diluted cultures a corresponding number of recombinants were scored. From one plate all recombinants (34) were examined. They were all found to belong to o1o2 and to be $histidine^-$. It was now tried to select $hist^+$ from recombinants from another crossplate with about loo recombinants by replication on EMSlac. 6 colonies were found which after purification showed the following pattern:

	lac	mal	rham	growth on EMS	Fla	o25	ô1o2	H16	H8	Sm
1	+	-	+	+	+	+	-	+	-	s
2	+	-	+	+	+	+	-	+	-	s
3	+	-	+	+	+	+	-	+	-	s
4	+	+	+	+	+	+	-	-	+	s
5	+	-	+	+	+	+	-	-	+	r
6	+	+	+	+	+	+	-	+	-	s
W37o3	-	-	+	-	-	+	-	+	-	r
W3438	+	+	-	-	+	-	+	-	+	s

We have almost finished a screening of all E.coli strains for fertility in SRP-crosses with our Hfr o25 strain W 37o3. This examination includes also the 8o K-teststrains which were not examined in Madison. These last mentioned strains are therefore also tested in SRP-crosses with the K12 strain W 3287. These examinations should be finished very soon and we can add them to the table when we receive your ms.

We have often been longing back to Madison especially during the awful winter we have had this year. Spring has now arrived and we hope that it has come to stay. Ida is still working full time in the lab even if she is about to burst but in a week or so we hope to see our new baby and she will retire from her desk for a short period if everything runs smoothly.
When will we be seeing you this summer, will it be before or after the congress in Stockholm? We certainly hope that you have not changed your plans as to the visit in Copenhagen.

Plese give our regards to everybody in the lab

yours Ida and Frits

P.S. We can add a correction to our report. In table 1 the headings ô1oo and o1o2 have to be switched around so that the left column consists of 1o2 strains and the right one of o1oo strains.